

Claims:

1. In a communications system for transporting data traffic from a source end point to a destination end point over a path which includes a transmission link having a physical layer transport rate which is subject to variations as a function of time, a method of managing transmission of the data traffic through the system, the method comprising: monitoring the physical layer transport rate of said link; sending to said source end point a management cell including rate information based on the monitored physical layer transport rate; and adjusting, by said source end point, said transmission rate responsive to the rate information in said management cell.
2. A method as defined in claim 1 wherein said management cell is generated in response to a change in said physical layer transport rate.
3. A method as defined in claim 2 wherein said management cell is generated when said change in said physical layer transport rate exceeds a threshold value.

Sub A'

00199786-112598

4. A method as defined in claim 3 wherein said management cell is generated in response to a decrease in physical layer transport rate in excess of a first threshold value.

5. A method as defined in claim 3 wherein said management cell is generated in response to an increase in physical layer transport rate in excess of a second threshold value.

6. A method as defined in claim 1 wherein said traffic is shaped to available bit rate (ABR) category of service traffic including resource management (RM) cells and said rate information is inserted into said resource management cell.

7. In a communications system for transporting data traffic from a source end point to a destination end point over a path which includes a transmission link having a physical layer transport rate which is subject to variations as a function of time, a system for managing transmission of the data traffic through the system, the system comprising: monitoring means associated with the physical layer to monitor the transport rate of said link; sending means to send to said source end point a management cell including rate information based on the monitored physical layer transport rate; and

Sub A!
concl.

00199786-112598

Sub P2

adjusting means, at said source end point, to adjust said transmission rate responsive to the rate information in said management cell.

8. A system as defined in claim 7 including means to generate said management cell in response to a change in the transport rate of said physical layer transmission link.

9. A system as defined in claim 8 including means to compare said change in transport rate with a threshold value and to generate said management cell only when said change exceeds said threshold value.

10. A system as defined in claim 9 having shaping means to shape said data traffic to available bit rate (ABR) category of service having resource management (RM) cells periodically carrying explicit rate information in a feed back loop to said source end point, said system including means to insert said rate information into said RM cells.

11. In a communications system for transporting data traffic from an a source end point to a destination end point over a path which includes a transmission link having a physical layer transport rate which is subject to variations as a function of time, a method of managing

SubA2

00527 9826660

transmission of the data traffic through the system, the method comprising:

continually monitoring the physical layer transport rate of said transmission link;

generating a management cell in response to a change in said monitored physical layer transport rate which exceeds a threshold value, said management cell including rate information based on said monitored transport rate; sending to said source end point said management cell; and adjusting the source end point transmission rate in response to the rate information in the management cell.

12. A method as defined in claim 11 wherein said data traffic is shaped to available bit rate (ABR) category of service having resource management (RM) cells for periodically carrying explicit rate information to said source end point in a feed back loop said rate information being inserted into said RM cell.

13. In a communications system for transporting data traffic from an a source end point to a destination end point over a path which includes a transmission link having a physical layer transport rate which is subject to variations as a function of time, a system for managing

Sub
cont

00199786-112596

transmission of the data traffic through the system, the system comprising:

monitoring means for monitoring the physical layer transport rate of said link;

generating means to generate a management cell in response to a change in said monitored physical layer transport rate which exceeds a threshold value, said management cell including information based on said monitored transport rate;

means to send said management cell to said source end point; and

adjusting means at said source end point to adjust said transmission rate in response to the rate information in the management cell.

14. In a communications system for transporting data traffic from a source end point to a destination end point over a path which includes a transmission link having a physical layer transport rate which is subject to variations as a function of time, a method of managing the transmission of data traffic through the system, the method comprising: shaping a data connection from the source to the available bit rate (ABR) category of service, the ABR connection including integrated resource management (RM) cells for carrying congestion information back to said source over a

09199786-11399

SubP
cont.

Sub A2
incl.

feedback path; monitoring the physical layer transport rate of said physical layer transmission link and recording a value derived from said monitored rate in said RM cell; returning said RM cell including the recorded value to said source end point; and adjusting by the end point source the transmission rate in response to the recorded value in the RM cell.

15. A method as defined in claim 14 wherein said transmission link is a digital subscriber loop (xDSL).

16. A method as defined in claim 15 wherein said digital subscriber loop is an asymmetric digital subscriber loop (ADSL)

17. A method as defined in claim 16 wherein data between said source and said destination is bi-directional.

Sub A3

18. A method as defined in claim 17 wherein data between said destination and said source for at least part of said ATM path is shaped to comply with ATM unspecified bit rate (UBR) category of service.

19. A method as defined in claim 14 wherein said transmission link is a wireless path.

09199786-112598

20. A method as defined in claim 14 wherein said transmission link is a path for inverted multiplexing over ATM (IMA).

21. A system for managing data traffic from a source end point to a destination end point over an ATM path, the ATM path including a transmission link having a variable physical layer transport rate, said system comprising: shaping means to shape said data traffic connection to comply with ATM available bit rate (ABR) category of service, said ABR connection including an integrated resource management (RM) cell for returning explicit rate (ER) congestion information to said source over a feedback path; monitoring means associated with said transmission link to monitor transport rate capability of said transmission link; recording means to record a rate value derived from said monitored transport rate capability in said RM cell; and control means in said source to adjust the transmission rate of said data traffic in accordance with said transport rate information.

04599786-112593
865277

Add 15